UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 April 2009_.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-4 and 29-40_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-4 and 29-40_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 29-40 have been

    considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and
> process of making and using it, in such full, clear, concise, and exact terms as to enable any
> person skilled in the art to which it pertains, or with which it is most nearly connected, to make
> and use the same and shall set forth the best mode contemplated by the inventor of carrying
> out his invention.

2. **Claim 30** is rejected under 35 U.S.C. 112, first paragraph, as failing to

    comply with the enablement requirement. The claim(s) contains subject

    matter which was not described in the specification in such a way as to

    enable one skilled in the art to which it pertains, or with which it is most

    nearly connected, to make and/or use the invention. Claim 30 recites "the

    serial to parallel interface is configured to format the one or more MPEG

    frames into a byte wide stream." The specification does not provide enough

    information as to what is occurring in the serial to parallel converter into to

    "format the one or more MPEG frames into a byte wide stream."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3. **Claim 30** is rejected under 35 U.S.C. 112, second paragraph, as being

    indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention. **Claim 30** recites "the serial

to parallel interface is configured to format the one or more MPEG frames

into a byte wide stream." A serial to parallel interface transfers a serial signal

(single signal) into parallell signals (plurality of signals). How can the serial to

parallel interface format one or more MPEG frames into a or one byte wide

stream?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4. **Claims 1,2,3** are rejected under 35 U.S.C. 103(a) as being unpatentable

    over Dale et al (US Patent No.: 7197276) in view of Jaffe et al (US

    Publication No.: 20010034867) .

    a. **Claim 1**,

        i.   Dale et al discloses

             •   "a satellite earth station operably coupled to at least one data

                 network" (Fig. 1, label 108) and

             •   "a plurality of satellite modems, each satellite modem configured

                 to communicate with the satellite earth station via at least one

                 servicing satellite (Fig. 1, labels 110, and 112)

- "wherein the satellite earth station includes: a host processor configured to receive data packets from the at least one data network" (Col. 9, lines 24-26 discloses wireless modems receive the channel signal transmitted over airwaves.)

- "a Data Over Cable Service Interface Specification (DOCSIS) Media Access Control (MAC) to format the data packets into one or more Moving Picture Experts Group (MPEG) frames" (Fig. 6, label 202, Col. 5, lines 5-10 discloses the DOCSIS MAC outputs an MPEG data stream 210.)

- "a satellite modulator coupled to the DOCSIS MAC configured to modulate the one or more MPEG frames" (Fig. 6, labels 604,610) "based upon a selected modulation scheme from among a plurality of modulation schemes" (Col. 7, lines 47-51 discloses the MAC outputs MPEG data stream into a parser so the parser can queue the data stream according to the type of modulation.) and

- "a selected code rate from among a plurality of code rates to provide downstream output data for transmission to at least one of the plurality of satellite modems" (Col. 7, lines 47-51 discloses the MAC outputs MPEG data stream into a parser so the parser can queue the data stream according to the type of modulation. Different types of modulation schemes will have different code

rates, thus the data stream is queued according to the code rate

by being queued according to the modulation type.)

- the satellite modulator including: a plurality of queues (Fig. 6,

  labels 604,60,608),

- "each queue configured to store the one or more of the MPEG

  frames based upon a modulation scheme and a code rate to

  provide a queue block of data" (Col. 7, lines 47-51 discloses the

  MAC outputs MPEG data stream into a parser so the parser can

  queue the data stream according to the type of modulation. Col.

  8, lines 60-65 discloses the data streams are queued according

  to modulation type and code rate of forward error correction.)

- "the plurality of queues being configured such that each queue

  corresponds to a possible combination of modulation scheme

  and code rate among a plurality of possible combinations of

  modulation schemes and code rates" (Col. 8, lines 60-65

  discloses the data streams are queued according to modulation

  type and code rate of forward error correction. Col. 5, lines 60-67

  discloses the type of modulation and code rate comes from the

  training tones.)

- "a multirate encoder configured to receive the queue block of

  data from a selected queue from the plurality of queues and to

  encode the queue block of data using the code rate associated

  with the selected queue to provide an inner encoded data block"

(Fig. 6, labels 610,612,614 shows an encoder and modulator. Col. 8, lines 60-65 discloses the data streams are queued according to modulation type and code rate of forward error correction.)

- "a modulator configured to modulate the inner encoded data block using the modulation scheme rate associated with the selected queue to provide the downstream output data." (Fig. 6, labels 610,612,614 shows modulators for modulating the data stream from the queues, wherein the data is organized according to the modulation type and code rate of the forward error correction. (Col. 8, lines 60-65))

ii. Dale et al fails to disclose a turbo encoder.

iii. Jaffe et al discloses such a limitation. (paragraph 70 discloses a turbo encoder.) IT would have been obvious to one skilled in the art at the time of the invention to incorporate encoding using turbo encoding as disclosed by Jaffe et al into Dale et al so to provide robustness and to encode according to the code dictated by the training sequence as discussed in Dale et al, thus effectively encoding the data stream.

b. **Claim 2**, Dale et al discloses "the data network includes an Ethernet network." (Col. 4, lines 16-17 discloses a wireless communication system, wherein Ethernet network is a type of wireless communication system.)

c. **Claim 3**,

- Regarding limitation "a Reed-Solomon (RS) encoder configured to receive the queue block of data from the selected queue and to encode the queue block of data using the code rate associated with the selected queue to provide an outer encoded data block", Dale et al discloses an encoder connected to a queue. (Fig. 6, labels 604,610) The data stored in the queue is organized by the code rate. (Col. 8, lines 60-67) Jaffe et al discloses an encoder as a Reed-Solomon encoder. (paragraph 70)

- Regarding limitation "wherein the multirate turbo encoder is configured to receive the outer encoded data block and to encode the outer encoded data block using the code rate associated with the selected queue to provide the inner encoded data block", Jaffe et al discloses the output of the Reed-Solomon encoder is passed to a turbo encoder. (paragraph 70) Paragraph 76 discloses the turbo encoder has a rate controlled by the FEC clock nco.

d. **Claim 33**, Dale et al discloses "a second modulator configured to module the downstream output data to an intermediate frequency (IF)." (Fig. 6, labels 616,618,620 shows upconverters for converting to IF or RF.)

e. **Claim 34**, Dale et al discloses "the plurality of modulation schemes includes at least one of a group consisting of: quadraphase-shift keying

(QPSK); and 8 Phase-Shift Keying (8PSK)." (Fig. 7, labels 604,606

shows qpsk as one of the modulation types.)

f. **Claim 35**, Dale et al discloses "the plurality of code rates includes at

least one of a group consisting of: 1/2; 2/3; 3/4; and 5/6." (Fig. 7, labels

604,606 shows the code rates, wherein the code rate depends on the

information the training sequence. (Col. 5, lines 60-65))

g. **Claim 37**, Dale et al discloses "wherein the queue block of data is part of

a plurality of queue blocks of data, the satellite modulator being

configured to group one or more of the plurality of queue blocks of data

to provide a superframe." (Fig. 6, labels queue show a plurality of queue

blocks, label 622 shows the combination of the blocks into a superframe

for transmission.)

h. **Claim 38**, Dale et al discloses "wherein the one or more of the plurality of

queue blocks of data are taken from two or more queues from the

plurality of queues, each of the two or more queues from the plurality of

queues being associated with a different modulation scheme and a

different code rate." (Fig. 6, label 622 shows the combination of two or

more queues.)

i. **Claim 39**, Dale et al discloses "the satellite modulator is configured to

append one or more map messages (PHY-MAPs) to the superframe to

provide the downstream output data." (Col. 5, lines 60-67 discloses

training tones are found within the transmit information to provide code

rate and type of modulation.)

j. **Claim 40**, Dale et al discloses "the one or more PHY-MAPs specify the

modulation scheme and the code rate for each of the queue blocks of

data from the superframe." (Col. 5, lines 60-67 discloses training tones

are found within the transmit information to provide code rate and type of

modulation.)

5. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dale

et al (US Patent No.: 7197276) in view of Jaffe et al (US Publication No.:

20010034867), further in view of Quigley et al (US Publication No.:

20010055319)

a. **Claim 4,**

i. Dale in view of Jaffe fails to disclose the limitations of claim 4.

ii. Quigley et al discloses

• "a SPI controller configured to support at least one downstream

an encryption engine configured to encrypt the data packets to

provide encrypted data packets" (Fig. 8a, label 426, labels 43

and 43 show the encryption engines.)

• "an insertor to frame the one or more encrypted data packets in

MAC headers to provide encapsulated data packets" (Fig. 7a,

label mac header processor, Fig. 8a, label crc/hcs inserter)

• "a timing generator configured to insert DOCSIS time stamps in

the encapsulated data packets MPEG frames at programmable

intervals to provide stamped data packets" (paragraph 133

discloses a time stamp and Fig. 6a, label 20, wherein the

timestamp is inserted into the downstream information. Dale et

al's Fig. 6 shows the best picture of the MPEG composite MPEG

signal.) and

- "a formatter configured to format the stamped data packets into

  the one or more MPEG frames." (Fig. 8a, label 557, Fig. 8b

  shows the multiple data is separated into one or more frames

  (MPEG).)

6. **Claims 29,30,31,32** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dale et al (US Patent No.: 7197276) in view of Jaffe et al

(US Publication No.: 20010034867), further in view of Thi et al (US

Publication No.: 20020061012).

a. **Claim 29**,

i.   Dale discloses

- "an interface configured to format the one or more MPEG frames

  into one or more parallel MPEG frames". (Dale et al discloses in

  Fig. 7 the separation of a serial data stream into parallel data

  streams.

- "the satellite modulator being configured to modulate the one or

  more parallel MPEG frames based upon the modulation scheme

  and the code rate. (Fig. 7 shows parallel streams are entered in

  to the queues. Fig. 6, labels 610,612,614 shows the multiple

modulators for modulating the plurality of data streams from the

queues. The data stored in the queue is organized by the code

rate. (Col. 8, lines 60-67))

    ii.   Dale et al fails to disclose "an actual serial to parallel interface".

    iii.   Thi et al discloses in paragraph 165 discloses a serial to parallel

converter. It would have been obvious to one skilled in the art at the

time of the invention to use a serial to parallel interface so to produce

the parallel data streams from one serial data stream as disclosed by

Thi et al and Dale et al, thus allowing for efficient modulation of the

streams.

b. **Claim 30**, Dale et al discloses "wherein the serial to parallel interface is

configured to format the one or more MPEG frames." (Fig. 7 shows the

separation of the data stream into plurality of MPEG frames.)

c. **Claim 31**,

    i.   Thi et al discloses

- "a randomize unit configured to randomize the queue block of

data from the selected queue to provide a randomized queue

block of data". (paragraph 165 discloses a randomizer to

randomize the bits before entering the FEC encoder, wherein the

randomizer receives information from the FIFO register.) It would

have been obvious to one skilled in the art at the time of the

invention to incorporate a randomizer disclosed by Thi et al into

Dale et al in view of Jaffe et al so to effective encode the transmit

signal.

- "wherein the encoder is configured to encode the randomized

    queue block of data using the code rate associated with the

    selected queue to provide the inner encoded data block."

    (paragraph 165 discloses the encoder comprises a randomizer

    before or after a Reed Solomon encoder. The encoder receives

    information from the FIFO register as discussed in paragraph

    165.) Although Thi et al fails to disclose a multirate turbo

    encoder, Jaffe et al discloses such an encoder comprising a

    Reed Solomon encoder and turbo encoder. (paragraph 70)

d. **Claim 32**, Jaffe et al discloses "a block header insert module configured

    to insert a block header into the an inner encoded data block". (Fig. 15,

    label 1905 and 1907 discloses inserting the PN sequence or known

    sequence into the FIFO for encoding. paragraph 70 further describes the

    process.)

7. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over

    Dale et al (US Patent No.: 7197276) in view of Jaffe et al (US Publication

    No.: 20010034867), further in view of Sindhushayana et al (US Publication

    No.: 20030053435).

    a. **Claim 36**,

    b. Dale in view of Jaffe fails to disclose the limitations of claim 36.

c. Sindhushayana et al discloses "the multirate turbo encoder is configured

    to appended one or more tailing symbols (TS) to the inner encoded data

    block, the one or more tailing symbols (TS) being used to drive the inner

    encoded data to a known state for proper decoding. (paragraph 71) It

    would have been obvious to one skilled in the art to insert tailing symbols

    so to incorporate information within the end for more efficient decoding at

    the receiver.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection

    presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

    See MPEP § 706.07(a). Applicant is reminded of the extension of time policy

    as set forth in 37 CFR 1.136(a).

9. A shortened statutory period for reply to this final action is set to expire

    THREE MONTHS from the mailing date of this action. In the event a first

    reply is filed within TWO MONTHS of the mailing date of this final action and

    the advisory action is not mailed until after the end of the THREE-MONTH

    shortened statutory period, then the shortened statutory period will expire on

    the date the advisory action is mailed, and any extension fee pursuant to 37

    CFR 1.136(a) will be calculated from the mailing date of the advisory action.

    In no event, however, will the statutory period for reply expire later than SIX

    MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA WONG whose telephone number is (571)272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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